

Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: Pan A, Wang Y, Talaei M, Hu FB, Wu T. Relation of active, passive, and quitting smoking with incident type 2 diabetes: a systematic review and meta-analysis. *Lancet Diabetes Endocrinol* 2015; published online Sept 18. [http://dx.doi.org/10.1016/S2213-8587\(15\)00316-2](http://dx.doi.org/10.1016/S2213-8587(15)00316-2).

Relation of Active, Passive, and Quitting Smoking with Incident Diabetes: A Meta-analysis and Systematic Review

Pan A, Wang Y, Talaei M, Hu FB, Wu T.

Online Supplemental Material

The following materials are included in the Online Supplemental Material.

1. Search strategies in MEDLINE and EMBASE.
2. List of papers that were included in the meta-analysis but were not found from the search
3. Appendix Tables 1–7.
4. Appendix Figures 1–4.
5. References

Appendix Table 1. Characteristics of Studies Included in the Meta-analysis of Active Smoking and Risk of Incident Type 2 Diabetes

Appendix Table 2. Characteristics of Studies Included in the Meta-analysis of Passive Smoking and Risk of Incident Type 2 Diabetes

Appendix Table 3. Characteristics of Studies Included in the Meta-analysis of Smoking Cessation and Risk of Incident Type 2 Diabetes

Appendix Table 4. Extracted Data from Studies Reporting Smoking Doses and Risk of Type 2 Diabetes

Appendix Table 5. Quality Assessment of Studies Included in the Meta-analysis of Smoking and Risk of Type 2 Diabetes

Appendix Table 6. Smoking Cessation and Risk of Incident Type 2 Diabetes

Appendix Table 7. Calculation of Population Attributable Fraction for Type 2 Diabetes Associated with Smoking

Appendix Figure 1. Adjusted Relative Risk of Former Smoking with Risk of Incident Type 2 Diabetes

Appendix Figure 2. Adjusted Relative Risk of Passive Smoking with Risk of Incident Type 2 Diabetes

Appendix Figure 3. Adjusted Relative Risk of Smoking Cessation with Risk of Incident Type 2 Diabetes

Appendix Figure 4. Funnel Plots for (A) Current Smoking, (B) Former Smoking and (C) Passive Smoking for Publication Bias for Diabetes Risk

Search strategies in MEDLINE (2015-May-03)

- #1 (diabetes mellitus[MeSH Terms]) OR (type 2 diabetes mellitus[MeSH Terms]) OR (prediabetic state[MeSH Terms]) OR (metabolic syndrome X[MeSH Terms]) OR (glucose intolerance [MeSH Terms]) OR (hyperglycemia [MeSH Terms]) OR (glucose metabolism disorders [MeSH Terms]) OR (insulin resistance [MeSH Terms]) OR (glucose tolerance test [MeSH Terms]) OR ("insulin sensitivity"[Text Word]) OR ("insulin resistance"[Text Word]) OR ("impaired fasting glucose"[Text Word]) OR ("impaired glucose tolerance"[Text Word]) OR ("IGT"[Text Word]) OR ("IFG"[Text Word]) OR ("diabetes*"[Text Word]) OR ("diabetic*"[Text Word])
- #2 (smoking [MeSH Terms]) OR (smoking cessation [MeSH Terms]) OR (smoke inhalation injury [MeSH Terms]) OR (Tobacco Smoke Pollution[MeSH Terms]) OR (tobacco[MeSH Terms]) OR (smokeless[MeSH Terms]) OR (tobacco use cessation [MeSH Terms]) OR (tobacco use disorder [MeSH Terms]) OR (nicotine[MeSH Terms]) OR ("nicotine*"[Text Word]) OR ("tobacco*"[Text Word]) OR ("smok*"[Text Word]) OR ("cigarette*"[Text Word])
- #3 (incidence[MeSH Terms]) OR (cohort studies[MeSH Terms]) OR (follow-up studies[MeSH Terms]) OR (prognosis[MeSH Terms]) OR (early diagnosis[MeSH Terms]) OR (survival analysis[MeSH Terms]) OR ("course"[Title/Abstract]) OR ("predict*"[Title/Abstract]) OR ("prognos*"[Title/Abstract]))
- #4 NOT ((meta-analysis[MeSH Terms]) OR (review[publication type]) OR (case-control studies[MeSH term]))
- #5 Search #1 AND #2 AND #3 AND #4

Search strategies in EMBASE (April 16, 2014)

- #1 'diabetes mellitus'/exp OR 'prediabetic state'/exp OR 'metabolic syndrome x'/exp OR 'glucose intolerance'/exp OR 'hyperglycemia'/exp OR 'glucose metabolism disorders'/exp OR 'insulin resistance'/exp OR 'glucose tolerance test'/exp OR 'insulin sensitivity'/exp OR 'impaired glucose tolerance'/exp AND [embase]/lim
- #2 'smoke'/exp OR 'smoking'/exp OR 'smoking cessation'/exp OR 'smoke inhalation injury'/exp OR 'smokeless' OR 'tobacco use cessation'/exp OR 'tobacco use disorder'/exp OR 'tobacco'/exp OR 'nicotine dependence'/exp OR 'tobacco dependence'/exp OR 'smoking dependence' OR 'cigarette'/exp
- #3 'incidence'/exp OR 'cohort studies'/exp OR 'follow-up studies'/exp OR 'prognosis'/exp OR 'early diagnosis'/exp OR 'survival analysis'/exp OR 'prediction'/exp
- #4 Search #1 AND #2 AND #3 NOT 'meta-analysis'/exp NOT 'review'/exp NOT 'case-control studies'/exp AND [humans]/lim AND [embase]/lim

The following studies were further included by searching the reference lists of relevant papers and reviews:

1. Keen H, Jarrett RJ, McCartney P. The ten-year follow-up of the Bedford survey (1962–1972): glucose tolerance and diabetes. *Diabetologia* 1982; **22**: 73–8.
2. Feskens EJ, Kromhout D. Cardiovascular risk factors and the 25-year incidence of diabetes mellitus in middle-aged men. The Zutphen Study. *Am J Epidemiol* 1989; **130**: 1101–8.
3. Njolstad I, Arnesen E, Lund-Larsen PG. Sex differences in risk factors for clinical diabetes mellitus in a general population: a 12-year follow-up of the Finnmark Study. *Am J Epidemiol* 1998; **147**: 49–58.
4. Bonora E, Kiechl S, Willeit J, et al. Population-based incidence rates and risk factors for type 2 diabetes in white individuals: the Bruneck study. *Diabetes* 2004; **53**: 1782–9.
5. Ford ES, Mannino DM. National Health and Nutrition Examination Survey Epidemiologic Follow-up Study. Prospective association between lung function and the incidence of diabetes: findings from the National Health and Nutrition Examination Survey Epidemiologic Follow-up Study. *Diabetes Care* 2004; **27**: 2966–70.
6. Dehghan A, van Hoek M, Sijbrands EJ, Stijnen T, Hofman A, Witteman JC. Risk of type 2 diabetes attributable to C-reactive protein and other risk factors. *Diabetes Care* 2007; **30**: 2695–9.
7. Mozaffarian D, Marfisi R, Levantesi G, et al. Incidence of new-onset diabetes and impaired fasting glucose in patients with recent myocardial infarction and the effect of clinical and lifestyle risk factors. *Lancet* 2007; **370**: 667–75.
8. Park CH, Ga H, Leem JH, Kwak SM, Kim HC, Choi JH. The effect of smoking status upon occurrence of impaired fasting glucose or type 2 diabetes in Korean men. *J Prev Med Public Health* 2008; **41**: 249–54.
9. Chien K, Cai T, Hsu H, Su T, Chang W, Chen M, Lee Y, Hu FB. A prediction model for type 2 diabetes risk among Chinese people. *Diabetologia* 2009; **52**: 443–50.
10. Mozaffarian D, Kamineni A, Carnethon M, Djousse L, Mukamal KJ, Siscovick D. Lifestyle risk factors and new-onset diabetes mellitus in older adults: the cardiovascular health study. *Arch Intern Med* 2009; **169**: 798–807.
11. Joseph J, Svartberg J, Njølstad I, Schirmer H. Incidence of and risk factors for type-2 diabetes in a general population: the Tromsø Study. *Scand J Public Health* 2010; **38**: 768–75.
12. Spijkerman AM, van der AD, Nilsson PM, et al. Smoking and long-term risk of type 2 diabetes: the EPIC-InterAct study in European populations. *Diabetes Care* 2014; **37**: 3164–71.
13. Sadeghi M, Talaei M, Parvaresh Rizi E, Dianatkhah M, Oveisgharan S, Sarrafzadegan N. Determinants of incident prediabetes and type 2 diabetes in a 7-year cohort in a developing country: The Isfahan Cohort Study. *J Diabetes* 2014 Oct 28. doi: 10.1111/1753-0407.12236. [Epub ahead of print].
14. Hilawe EH, Yatsuya H, Li Y, et al. Smoking and diabetes: is the association mediated by adiponectin, leptin, or C-reactive protein? *J Epidemiol* 2015; **25**: 99–109.

Appendix Table 1. Characteristics of Studies Included in the Meta-analysis of Active Smoking and Risk of Type 2 Diabetes

Reference, year	Study location	n	Male (%)	Mean baseline age	Current smoking (%)	Mean follow-up years	n of cases	Reference group	Current smoking	Former smoking
Keen et al, ¹ 1982	UK	241	52.7	54.7-57.3	29.5	10 (max)	36	Never+Former	1.22 (0.45-3.29)	
Feskens et al, ² 1989	USA	841	100	50	NR	18.1	58	Never+Former	3.30 (1.40-7.90)	
Cassano et al, ³ 1992	USA	1972	100	41.9	36.0	18	225	Never smoker	1.50 (1.00-2.10)	1.70 (1.20-2.40)
Rimm et al, ⁴ 1995	USA	39745	100	53.4	9.8	5.3	492	Never smoker	1.95 (1.45-2.61)	1.29 (1.05-1.57)
Kawakami et al, ⁵ 1997	Japan	2312	100	18-53	61.0	7.9	41	Never smoker	2.51 (1.30-4.83)	2.25 (0.67-7.49)
Njolstad et al, ⁶ 1998	Norway	11654	52.3	51.3	NR	12.1	162	Never+Former	0.85 (0.55-1.30) in men; 0.79 (0.47-1.31) in women	
Sugimori et al, ⁷ 1998	Japan	2573	71.9	46.6	54.9	16 (max)	296	Never+Former	1.42 (1.10-1.83)	
Uchimoto et al, ⁸ 1999	Japan	6250	100	41.4	62.1	16 (max)	450	Never	1.47 (1.14-1.92)	1.10 (0.79-1.53)
Manson et al, ⁹ 2000	USA	21068	100	52.9	10.9	12.1	770	Never smoker	1.62 (1.28-2.05)	1.1 (1.0-1.4)
Nakanishi et al, ¹⁰ 2000	Japan	1266	100	46.1-47.5	51.0	4.7	54	Never smoker	2.41 (1.22-4.77)	1.08 (0.34-3.42)
Strandberg et al, ¹¹ 2000	Finland	1802	100	47	30.5	16.8	94	Never+Former	1.62 (1.01-2.59)	
Wannamethee et al, ¹² 2001	UK	7124	100	40-59	41.0	16.8	290	Never smoker	1.74 (1.24-2.43)	1.33 (0.92-1.90)
Will et al, ¹³ 2001	USA	709827	38.7	52.5	54.0	9.5	13312	Never smoker	1.22 (1.03-1.44) in men; 1.26 (0.99-1.60) in women	1.07 (1.02-1.13) in men; 1.07 (0.99-1.15) in women
Montgomery et al, ¹⁴ 2002	UK	4917	NR	16	33.9	17 (max)	28	Never+Former	2.62 (1.41-4.88)	
Sawada et al, ¹⁵ 2003	Japan	4745	100	46.3	67.2	16.4	280	Never+Former	1.24 (1.01-1.53)	
Bonora et al, ¹⁶ 2004	Italy	837	50	40-79	NR	9.4	64	Never+Former	0.90 (0.50-1.70)	
Eliasson et al, ¹⁷ 2004	Sweden	1275	100	47.2	18.4	8.5	27	Never smoker	4.61 (1.37-15.5)	3.13 (1.13-8.67)
Ford et al, ¹⁸ 2004	USA	4830	47.9	45.6	36.2	16	443	Never+Former	1.36 (1.06-1.76)	
Sairenchi et al, ¹⁹ 2004	Japan	128141	30.8	40-79	26.0	4.7	7990	Never smoker	1.27 (1.16-1.38) in men; 1.39 (1.20-1.72) in women	1.10 (1.00-1.20) in men; 1.13 (0.75-1.70) in women
Foy et al, ²⁰ 2005	USA	906	43.2	54.6	14.1	5 (max)	148	Never smoker	2.66 (1.49-4.77)	1.31 (0.82-2.09)
Lyssenko et al, ²¹ 2005	Sweden	2115	45.7	46.4	40.0	6	136	Never+Former	1.50 (1.00-2.10)	

Patja et al, ²² 2005	Finland	41372	47.7	43.5	45.0	21	2770	Never smoker	1.46 (1.16-1.85)	1.09 (0.96-1.24)
Tenenbaum et al, ²³ 2005	Israel	630	89.2	60.6	12.0	6.2	98	Never+Former	1.94 (1.16-3.25)	
Houston et al, ²⁴ 2006	USA	4572	44.7	25	30.0	15	764	Never smoker	1.65 (1.28-2.13)	1.17 (0.86-1.57)
Meisinger et al, ²⁵ 2006	Germany	10892	50.2	47.4	33.8	12.5	672	Never smoker	1.77 (1.42-2.22) in men; 1.38 (1.00-1.90) in women	1.11 (0.86-1.44) in men; 1.20 (0.66-2.38) in women
Vasiliu et al, ²⁶ 2006	USA	1384	49.7	20-45	23.8	22.2	180	Never smoker	1.72 (1.01-2.94) in men; 1.86 (1.00-3.46) in women	1.99 (1.15-2.44) in men; 2.26 (0.93-5.49) in women
Burke et al, ²⁷ 2007	Australia	463	50.2	44.1	36.7	12.9	103	Never+Former	2.05 (1.23-3.39)	
Cugati et al, ²⁸ 2007	Australia	2123	41.5	>49	10.5	10 (max)	165	Never+Former	1.64 (1.01-2.65)	
Dehghan et al, ²⁹ 2007	The Netherlands	6935	39.4	69.8	22.1	9.9	645	Never+Former	1.16 (0.96-1.40)	
Holme et al, ³⁰ 2007	Norway	6382	100	40-49	43.9	28 (max)	584	Never smoker	1.17 (0.92-1.48)	1.02 (0.79-1.31)
Hur et al, ³¹ 2007	Korea	27635	100	39.1	52.3	8	1170	Never smoker	1.60 (1.29-1.97)	1.22 (0.96-1.55)
Mozaffarian et al, ³² 2007	Italy	8291	87	59	44.6	3.2	998	Never smoker	1.60 (1.34-1.90)	1.06 (0.90-1.24)
Onat et al, ³³ 2007	Turkey	3026	49.5	48.4	34.9	5.9	204	Never smoker	0.70 (0.40-1.23)	
Wang et al, ³⁴ 2007	Taiwan	4958	84.2	55.9	7.5	7	474	<1 pack/day	1.40 (1.00-1.90)	
Akbaraly et al, ³⁵ 2008	France	1389	48.2	65	33.8	9	127	Never+Former	1.08 (0.67-1.75)	
Balkau et al, ³⁶ 2008	France	1863	100	47.2	25.2	9	140	Never+Former	2.41 (1.55-3.76)	
Hayashino et al, ³⁷ 2008	Japan	6498	79.1	38.2	49.9	3.4	229	Never smoker	1.99 (1.29-3.04)	1.15 (0.66-2.03)
Kim et al, ³⁸ 2008	Korea	5372	70	46.8	32.0	5 (max)	234	Never+Former	1.75 (1.23-2.47)	
Kouvousen et al, ³⁹ 2008	Finland	5827	100	39.4	36.6	17.1	313	Never+Former	1.37 (1.09-1.71)	
Lyssenko et al, ⁴⁰ 2008	Sweden	16061	NR	NR	37.2	23.5	2063	Never+Former	1.43 (1.25-1.63)	
Magliano et al, ⁴¹ 2008	Australia	5842	45.7	50.89	11.3	5 (max)	224	Never smoker	1.70 (1.11-2.63)	1.03 (0.74-1.44)
Nagaya et al, ⁴² 2008	Japan	16829	100	43.8	52.4	7.4	869	Never smoker	1.11 (0.96-1.26)	1.07 (0.88-1.30)
Nichols et al, ⁴³ 2008	USA	46578	40.4	57.5	20.4	6.75	1854	Never+Former	1.37 (1.22-1.54)	
Park et al, ⁴⁴ 2008	Korea	1717	100	37.7	56.5	4 (max)	50	Never smoker	1.75 (1.23-2.49)	1.07 (0.64-1.92)

Chien et al, ⁴⁵ 2009	Taiwan	2960	46	54	32.5	10	548	Never+Former	1.01 (0.84-1.23)
Cho et al, ⁴⁶ 2009	Korea	3048	100	51.4	46.6	4 (max)	329	Never smoker	2.21 (1.60-3.04)
Cullen et al, ⁴⁷ 2009	USA	36839	0	62	14.0	13.2	3281	Never smoker	1.35 (1.22-1.50)
Hippisley-Cox et al, ⁴⁸ 2009	UK	2540753	49.5	41	24.1	6.5	78081	Never+Former	1.25 (1.21-1.29) in men; 1.27 (1.23-1.31) in women
Laaksonen et al, ⁴⁹ 2009	Finland	8627	44.7	40-79	21.9	10 (max)	226	Never smoker	1.78 (1.12-2.48)
Mozaffarian et al, ⁵⁰ 2009	USA	4883	41.4	72.7	58.5	7.1	337	Never smoker	1.30 (1.04-1.64)
Rathmann et al, ⁵¹ 2009	Germany	887	50.6	63.2	12.4	6.9	93	Never smoker	3.6 (1.5-8.9)
Jee et al, ⁵² 2010	Korea	1236443	63.7	46.5	40.4	10	89422	Never smoker	1.40 (1.27-1.55) in men; 1.31 (1.24-1.38) in women
Joseph et al, ⁵³ 2010	Norway	26168	47.5	46.6	37.8	10.8	522	Never smoker	1.19 (1.10-1.28) in women 2.02 (1.47-2.77) in men; 1.91 (1.41-2.62) in women
Shirom et al, ⁵⁴ 2010	Israel	870	67	41.4	NR	20	109	Never+Former	1.48 (1.20-1.76)
Yeh et al, ⁵⁵ 2010	USA	10892	43.3	53.8	23.6	9	1254	Never smoker	1.31 (1.04-1.65)
Fagerberg et al, ⁵⁶ 2011	Sweden	341	0	69.9	17.0	5.5	69	Never smoker	4.11 (2.05-8.23)
Fukui et al, ⁵⁷ 2011	Japan	4152	58.8	48.2	16.0	8.15	262	Never smoker	1.04 (0.88-1.22)
Ide et al, ⁵⁸ 2011	Japan	5848	66.4	43.6	34.0	6.5	287	Never smoker	1.13 (0.83-1.53)
Reis et al, ⁵⁹ 2011	USA	207479	55.4	61.6	21.3	11 (max)	18000	Never+quit \geq 10 y	1.32 (1.25-1.39) in men; 1.19 (1.12-1.27) in women
Steinbrecher et al, ⁶⁰ 2011	USA	74970	48.1	45.75	15.0	12.1	8559	Never smoker	1.19 (1.09-1.31) in men; 1.11 (1.01-1.23) in women
Wang et al, ⁶¹ 2011	China	387	68	38.9	50.3	4.08	48	Never+Former	2.49 (1.56-4.21)
Zhang et al, ⁶² 2011	USA	100526	0	47.5	NR	24 (max)	5392	Never smoker	1.50 (1.35-1.66)
de Leon et al, ⁶³ 2012	Spain	5521	42.2	42	25.7	3.5	156	Never+Former	0.80 (0.60-1.30)
Doi et al, ⁶⁴ 2012	Japan	1935	41	57.2	23.0	11.8	286	Never+Former	1.34 (0.86-2.10)
Guasch-Ferre et al, ⁶⁵ 2012	Spain	1381	41.1	67	17.6	4.75	155	Never+Former	1.72 (1.18-2.52)
Heianza et al, ⁶⁶ 2012	Japan	7654	71.1	50.2	26.0	5	289	Never+Former	1.53 (1.14-2.06)
Jeon et al, ⁶⁷ 2012	USA	782	37.9	68.8	12.0	6.3	144	Never smoker	0.81 (0.41-1.59)
Morimoto et al, ⁶⁸ 2012	Japan	2027	100	58.1	45.5	8.2	246	Never smoker	2.97 (1.98-4.45)
									2.26 (1.69-3.03)

Morrison et al, ⁶⁹ 2012	USA	909	46	12·3	29·0	26	135	Never smoker	1·64 (1·03-2·61)
Oba et al, ⁷⁰ 2012	Japan	59834	43·2	56·4	10 (max)	22·0	1100	Never smoker	1·42 (1·03-1·94) in men; 2·84 (1·53-5·29) in women
Ostenson et al, ⁷¹ 2012	Sweden	1862	100	46·5	24·0	10 (max)	74	Never smoker	1·50 (0·80-3·00)
Stringhini et al, ⁷² 2012	UK	7237	69·7	49·4	13·8	14·2	818	Never+Former	1·47 (1·22-1·78)
Teratani et al, ⁷³ 2012	Japan	8423	100	42·3	57·0	4·4	464	Never smoker	1·26 (0·96-1·65)
Icks et al, ⁷⁴ 2013	Germany	3547	47·5	58·8	22·0	5·1	319	Never smoker	1·05 (0·75-1·45)
Kaneto et al, ⁷⁵ 2013	Japan	13700	21·6	46·4	53·0	5	408	Never smoker	1·30 (1·03-1·65)
Luo et al, ⁷⁶ 2013	USA	115092	0	63·1	4·6	8·5	3789	Never smoker	1·28 (1·20-1·36)
Mani et al, ⁷⁷ 2013	UK	2164	0	29·6	13·0	6·7	41	Never+Former	1·66 (0·99-2·78)
Novak et al, ⁷⁸ 2013	Sweden	6828	100	51·1	50·0	23·8	899	Never+Former	1·13 (0·99-1·29)
Rasouli et al, ⁷⁹ 2013	Norway	90819	48	50·3	30·0	10·7	1860	Never smoker	1·04 (0·92-1·18)
Shi et al, ⁸⁰ 2013	China	51464	100	54·1	62·0	5·4	1304	Never smoker	1·06 (0·92-1·21)
Sadeghi et al, ⁸¹ 2014	Iran	2980	46·9	48·8	15·8	7	389	Never smoker	1·13 (0·80-1·61)
Spijkerman et al, ⁸² 2014	Europe	13863	35·9	52·7	24·0	11·7	10327	Never smoker	1·57 (1·38-1·79) in men; 1·47 (1·32-1·65) in women
Hilawe et al, ⁸³ 2015	Japan	3338	80·4	48·02	29·0	9·6	225	Never smoker	1·83 (1·30-2·57)
Lindberg et al, ⁸⁴ 2015	Norway	5349	NR	54	32·0	7·8	136	Never+Former	0·86 (0·57-1·29)

Abbreviations: F, female; M, male; NR, not reported.

Appendix Table 2. Characteristics of Studies Included in the Meta-analysis of Passive Smoking and Risk of Type 2 Diabetes

Reference, Year	Study location	n	Male (%)	Mean baseline age	Mean follow-up years	n of cases	Reference group	Adjusted variables	Passive smoking
Houston et al, ²⁴ 2006	USA	4572	44.7	25	15	764	Never smoker + no ETS exposure	Age, sex, race, years of education, income, health insurance, alcohol intake, total energy intake, diary saturated fat intake, systolic blood pressure, triglycerides	1.35 (1.06-1.71)
Hunt et al, ⁸⁵ 2006	USA	2371	42.4	43.7	NA	105	Never smoker + no ETS exposure	Age, sex, BMI, race, years of education, personal smoking status, family history of diabetes	1.09 (0.72-1.67)
Hayashino et al, ³⁷ 2008	Japan	6498	79.1	38.2	3.4	229	Never smoker + no ETS exposure	Age, sex, BMI, physical activity, alcohol intake, hypertension, intervention group, dietary intake of sweetened beverages and vegetable, family history of diabetes	1.20 (0.54-2.68)
Kowall et al, ⁸⁶ 2010	Germany	885	50.6	63.2	7	93	Never smoker + no ETS exposure	Age, sex, waist circumference, socioeconomic status, physical activity, alcohol intake, family history of diabetes, intake of meat and sausage, salad and vegetables, whole-grain bread, and coffee consumption, blood pressure, hypertriglyceridemia, adiponectin, insulin, HDL-cholesterol,	2.40 (1.00-5.90)
Ko et al, ⁸⁷ 2011	Korea	4244	15.3	51.9	5.1	465	Never smoker + no ETS exposure	Age, sex, residential area, education level, waist circumference, physical activity, alcohol intake, hypertension history, baseline total cholesterol, and HOMA-IR, glucose tolerance status	1.41 (1.16-1.70)
Zhang et al, ⁶² 2011	USA	100526	0	47.5	24 (max)	5392	Never smoker + no ETS exposure	Age, BMI, BMI2, race, physical activity, alcohol intake, husband's education, family history of diabetes, total energy intake, and intake of magnesium, calcium, vitamin D, total trans fat, cereal fiber, caffeine, total fat, and saturated fat	1.12 (1.02-1.23)
Lajous et al, ⁸⁸ 2013	France	37343	0	NA	12.5	795	Never smoker + no ETS exposure	Education, BMI, physical activity, alcohol intake, parental history of diabetes, body silhouette at age 8, childhood secondhand smoke exposure, hormone replacement therapy, treated hypertension and hypercholesterolemia, total energy intake, intake of processed red meat, coffee consumption	1.16 (1.00-1.34)

Abbreviations: ETS, environmental tobacco smoke; BMI, body mass index; HDL, high density lipoprotein; HOMA-IR, homeostasis model assessment of insulin resistance; NA: not available.

Appendix Table 3. Characteristics of Studies Included in the Meta-analysis of Smoking Cessation and Risk of Type 2 Diabetes

Reference, year	Study location	n	Male (%)	Mean baseline age	Mean follow-up years	n of cases	Reference group	Adjusted variables	Years since quitting smoking
Rimm et al, ⁴ 1995	USA	39745	100	53·4	6	492	Never smoker	Age, BMI, physical activity, alcohol intake, family history of diabetes	<3 years: 1·61 (1·05-2·46); 3-9 years: 1·25 (0·89-1·75); ≥10 years: 1·27 (1·02-1·58)
Wannamethee et al, ¹² 2001	UK	7124	100	40·59	16·8	290	Never smoker	Age, BMI, physical activity, alcohol intake, social class, indication of pre-existing CHD, and antihypertensive treatment	<5 years: 1·89 (1·16-3·06); 5-10 years: 1·20 (0·67-2·15); 10 to 20 years: 1·42 (0·87-2·31); ≥20 years: 0·95 (0·54-1·67) In men: <5 years: 1·20 (1·09-1·32); 5-10 years: 1·12 (1·03-1·21); ≥10 years: 0·99 (0·92-1·07); in women: <5 years: 1·19 (1·04-1·37); 5-10 years: 0·99 (0·86-1·13); ≥10 years: 1·02 (0·91-1·15)
Will et al, ¹³ 2001	USA	709827	38·7	52·5	9·5	13312	Never smoker	Age, age ² , BMI, BMI ² , race, education level, physical activity, alcohol intake, and dietary intakes of fats and carbohydrates	In men: <5 years: 1·12 (1·03-1·21); 5-10 years: 1·19 (1·04-1·37); 5-10 years: 0·99 (0·86-1·13); ≥10 years: 1·02 (0·91-1·15) In women: <5 years: 0·99 (0·92-1·07); ≥10 years: 0·95 (0·86-1·13); ≥10 years: 1·02 (0·91-1·15)
Hur et al, ³¹ 2007	Korea	27635	100	39·2	8	1170	Never smoker	Age, BMI, weight change, physical activity, alcohol intake, family history of diabetes, baseline fasting serum glucose	<5 years: 2·13 (1·51-3·00); 5-8 years: 1·44 (0·96-2·15); ≥8 years: 0·95 (0·72-1·25)
Yeh et al, ⁵⁵ 2010	USA	10892	43·3	53·8	9	1254	Never smoker	Age, BMI, waist circumference, race, sex, study center, education level, physical activity, triglyceride level, HDL-cholesterol level, and systolic blood pressure	<3 years: 1·80 (1·44-2·25); 3-5 years: 1·54 (1·10-2·14); 6-9 years: 1·21 (0·89-1·65); ≥10 years: 1·16 (0·99-1·36)
Zhang et al, ⁶² 2011	USA	100526	0	47·5	24 (max)	5392	Never smoker	Age, BMI, BM ² , race, physical activity, alcohol intake, husband's education, family history of diabetes, total energy intake, and intake of magnesium, calcium, vitamin D, total trans fat, cereal fiber, caffeine, total fat, and saturated fat	<5 years: 1·88 (1·59-2·23); 5-10 years: 1·50 (1·28-1·76); 10-20 years: 1·29 (1·11-1·52); ≥20 years 1·06 (0·90-1·24)
Morimoto et al, ⁶⁸ 2012	Japan	2070	100	58·1	9·2	246	Never smoker	Age, BMI (time-varying covariate), physical activity, alcohol intake, family history of diabetes, blood glucose, fasting status, systolic blood pressure, total cholesterol, triglycerides	<3 years: 2·64 (1·38-5·05); 3-5 years: 2·37 (1·24-4·53); 6-9 years: 1·17 (0·35-3·89); ≥10 years: 2·44 (1·58-3·79) In men: <5 years: 1·42 (1·03-1·94); ≥5 years: 0·98 (0·77-1·25); in women: <5 years: 2·84 (1·53-5·29); ≥5 years: 2·16 (1·13-4·13)
Oba et al, ⁷⁰ 2012	Japan	59834	43·2	56·4	5	1100	Never smoker	Age, BMI, weight change, physical activity, alcohol intake, hypertension, family history of diabetes	<5 years: 1·15 (1·06-1·25); 5-10 years: 1·14 (1·06-1·22); 10-20 years: 1·01 (0·96-1·07); 20-30 years: 0·94 (0·89-1·00); ≥30 years: 0·95 (0·88-0·99) In men: <10 years: 1·48 (1·28-1·72); ≥10 years: 1·20 (1·06-1·37); in women: <10 years: 1·43 (1·21-1·68); ≥5 years: 1·13 (1·00-1·28)
Luo et al, ⁷⁶ 2013	USA	115092	0	63·1	8·5	3789	Never smoker	Age, BMI, waist circumference, ethnicity, education, physical activity, alcohol intake, hypertension, and high cholesterol requiring pills	
Spijkerman et al, ⁸² 2014	Europe	13863	35·9	52·7	11·7	10327	Never smoker	Age, BMI, educational level, physical activity, intake of alcohol, coffee and meat	

Abbreviations: BMI, body mass index; CHD, coronary heart disease; HDL, high density lipoprotein; UK, United Kingdom; USA, United States of America.

Appendix Table 4. Extracted Data from Studies Reporting Smoking Doses and Risk of Type 2 Diabetes

Reference, year	Smoking doses and risk of type 2 diabetes
Studies with information on cigarettes per day	
Kawakami et al, ⁵ 1997	1-15 cigarettes/d, 1.13 (0.30-4.26); 16-25 cigarettes/d, 3.27 (1.18-9.09); ≥26 cigarettes/d, 3.21 (1.05-9.83)
Wannamethee et al, ¹² 2001	1-19 cigarettes/d, 1.79 (1.20-2.68); ≥20 cigarettes/d, 1.71 (1.19-2.45)
Will et al, ¹³ 2001	Men: 1-19 cigarettes/d, 1.05 (0.98-1.12); 20-39 cigarettes/d, 1.19 (1.13-1.26); ≥40 cigarettes/d, 1.45 (1.34-1.57); Women: 1-19 cigarettes/d, 0.98 (0.93-1.03); 20-39 cigarettes/d, 1.21 (1.14-1.29); ≥40 cigarettes/d, 1.74 (1.49-2.03)
Montgomery et al, ¹⁴ 2002	<1 cigarettes/week, 2.07 (0.25-17.19); 1-9 cigarettes/week, 1.92 (0.52-7.10); 10-19 cigarettes/week, 2.48 (0.52-11.97); 20-29 cigarettes/week, 1.61 (0.20-12.96); ≥30 cigarettes/week, 3.62 (1.42-9.24)
Sawada et al, ¹⁵ 2003	1-20 cigarettes/d, 1.22 (0.91-1.63); ≥21 cigarettes/d, 1.27 (0.94-1.71)
Sairenchi et al, ¹⁹ 2004	Men: 1-19 cigarettes/d, 1.46 (1.20-1.79); ≥20 cigarettes/d, 1.26 (1.15-1.37); Women: 1-19 cigarettes/d, 1.39 (1.13-1.72); ≥20 cigarettes/d, 1.38 (1.13-1.68)
Patja et al, ²² 2005	1-19 cigarettes/d, 1.30 (1.15-1.47); ≥20 cigarettes/d, 1.65 (1.45-1.89)
Meisinger et al, ²⁵ 2006	Men: 1-14 cigarettes/d, 1.48 (1.00-2.21); 15-19 cigarettes/d, 2.03 (1.15-3.59); ≥20 cigarettes/d, 2.10 (1.54-2.86); Women: 1-9 cigarettes/d, 1.25 (0.66-2.38); 10-19 cigarettes/d, 1.34 (0.72-2.50); ≥20 cigarettes/d, 1.37 (0.77-2.46)
Hur et al, ³¹ 2007	1-9 cigarettes/d, 1.23 (0.86-1.77); 10-19 cigarettes/d, 1.60 (1.28-2.00); ≥20 cigarettes/d, 1.75 (1.35-2.27)
Nagaya et al, ⁴² 2008	1-19 cigarettes/d, 0.95 (0.77-1.77); ≥20 cigarettes/d, 1.24 (1.02-1.49)
Park et al, ⁴⁴ 2008	1-9 cigarettes/d, 1.47 (0.71-3.04); 10-19 cigarettes/d, 1.84 (0.92-3.04); ≥20 cigarettes/d, 1.87 (1.13-3.67)
Cho et al, ⁴⁶ 2009	1-19 cigarettes/d, 2.06 (1.35-3.16); ≥20 cigarettes/d, 2.41 (1.48-3.93)
Jee et al, ⁵² 2010	Men: 1-9 cigarettes/d, 1.30 (1.25-1.32); 10-19 cigarettes/d, 1.37 (1.34-1.41); ≥20 cigarettes/d, 1.55 (1.51-1.60); Women: 1-9 cigarettes/d, 1.34 (1.25-1.44); 10-19 cigarettes/d, 1.26 (1.14-1.38); ≥20 cigarettes/d, 1.33 (1.15-1.53)
Laaksonen et al, ⁴⁹ 2009	1-29 cigarettes/d, 1.29 (0.88-1.90); ≥30 cigarettes/d, 4.34 (2.29-8.22)
Doi et al, ⁶⁴ 2012	1-9 cigarettes/d, 1.17 (0.63-2.17); ≥10 cigarettes/d, 1.56 (1.15-2.96)
Ostenson et al, ⁷¹ 2012	1-15 cigarettes/d, 0.8 (0.3-2.1); ≥16 cigarettes/d, 2.4 (1.0-5.8)
Teratani et al, ⁷³ 2012	1-10 cigarettes/d, 0.84 (0.51-1.38); 11-20 cigarettes/d, 1.26 (1.00-1.59); ≥21 cigarettes/d, 1.54 (1.20-1.97)
Spijkerman et al, ⁸² 2014	Men: 1-19 cigarettes/d, 1.43 (1.24-1.66); ≥20 cigarettes/d, 1.89 (1.62-2.21); Women: 1-19 cigarettes/d, 1.27 (1.12-1.44); ≥20 cigarettes/d, 1.84 (1.54-2.20)
Hilawe et al, ⁸³ 2015	1-19 cigarettes/d, 1.39 (0.82-2.38); 20-29 cigarettes/d, 1.74 (1.14-2.67); ≥30 cigarettes/d, 2.44 (1.57-3.82)
Studies with information on pack-years	
Foy et al, ²⁰ 2005	Normal glucose tolerance at baseline: 1-19 pack-years, 4.41 (1.23-15.84); ≥20 pack-years, 5.66 (2.07-15.49); Impaired glucose tolerance at baseline: 1-19 pack-years, 2.33 (0.75-5.11); ≥20 pack-years, 0.76 (0.24-4.02)
Cullen et al, ⁴⁷ 2009	1-19 pack-years, 1.21 (0.95-1.53); 20-39 pack-years, 1.33 (1.12-1.57); ≥40 pack-years, 1.45 (1.23-1.71)
Yeh et al, ⁵⁵ 2010	1-13 pack-years, 1.09 (0.92-1.28); 14-30 pack-years, 1.38 (1.18-1.61); ≥31 pack-years, 1.42 (1.20-1.67)
Fagerberg et al, ⁵⁶ 2011	1-9 pack-years, 3.70 (1.32-10.35); ≥10 pack-years, 4.49 (1.75-11.49)
Luo et al, ⁷⁶ 2013	1-9 pack-years, 1.20 (1.06-1.36); 10-19 pack-years, 1.35 (1.18-1.55); 20-29 pack-years, 1.20 (1.03-1.39); 30-39 pack-years, 1.12 (0.93-1.35); 40-49 pack-years, 1.28 (1.07-1.52); ≥50 pack-years, 1.48 (1.29-1.70)

Studies with information on both cigarettes per day and pack-years

Rimm et al, ⁴ 1995	Cigarettes per day: 1-14 cigarettes/d, 1.37 (0.77-2.34); 15-24 cigarettes/d, 2.38 (1.57-3.59); \geq 25 cigarettes/d, 1.94 (1.25-3.03); Pack-years: 1-10 pack-years, 1.23 (0.92-1.65); 11-20 pack-years, 1.04 (0.76-1.44); 21-30 pack-years, 1.31 (0.95-1.79); 31-40 pack-years, 1.48 (1.04-2.09); 41-60 pack-years, 1.60 (1.17-2.19); \geq 61 pack-years, 1.93 (1.32-2.84)
Manson et al, ⁹ 2000	Cigarettes per day: 1-19 cigarettes/d, 1.5 (1.0-2.2); \geq 20 cigarettes/d, 1.7 (1.3-2.3); Pack-years: 1-19 pack-years, 1.0 (0.8-1.3); 20-39 pack-years, 1.3 (1.0-1.6); \geq 40 pack-years, 1.6 (1.3-2.1)
Nakanishi et al, ¹⁰ 2000	Cigarettes per day: 1-20 cigarettes/d, 1.88 (0.71-5.00); 21-30 cigarettes/d, 3.02 (1.15-7.94); \geq 31 cigarettes/d, 4.09 (1.62-10.29); Pack-years: 1-20 pack-years, 2.25 (0.73-6.91); 21-30 pack-years, 2.40 (0.82-7.05); 31-40 pack-years, 2.39 (0.820-7.16); \geq 41 pack-years, 4.18 (1.66-10.50)
Zhang et al, ⁶² 2011	Cigarettes per day: 1-14 cigarettes/d, 1.39 (1.17-1.64); 15-24 cigarettes/d, 1.68 (1.43-2.01); \geq 25 cigarettes/d, 1.98 (1.57-2.36); Pack-years: 1-9 pack-years, 1.17 (1.01-1.35); 10-19 pack-years, 1.22 (1.06-1.40); 20-29 pack-years, 1.21 (1.04-1.41); 30-39 pack-years, 1.55 (1.30-1.83); \geq 40 pack-years, 1.72 (1.48-1.98)
Rasouli et al, ⁷⁹ 2013	Cigarettes per day: 1-19 cigarettes/d, 1.04 (0.93-1.16); \geq 20 cigarettes/d, 1.32 (1.11-1.56); Pack-years: 1-6 pack-years, 0.97 (0.80-1.17); 6-12 pack-years, 0.95 (0.81-1.13); \geq 13 pack-years, 1.20 (1.05-1.37)
Shi et al, ⁸⁰ 2013	Cigarettes per day: 1-10 cigarettes/d, 0.99 (0.84-1.17); 11-20 cigarettes/d, 1.07 (0.92-1.24); \geq 21 cigarettes/d, 1.25 (1.00-1.56); Pack-years: 1-19 pack-years, 1.01 (0.86-1.18); 20-39 pack-years, 1.02 (0.87-1.20); \geq 40 pack-years, 1.28 (1.04-1.57)

Other characteristics of the included studies were shown in the Appendix Table 1.

Appendix Table 5. Quality Assessment of Studies Included in the Meta-analysis of Smoking and Risk of Type 2 Diabetes

Reference, year	1. Representativeness of the exposed cohort	2. Selection of the non exposed cohort	3. Ascertainment of exposure	4. Exclusion of outcome at baseline	5. Adjustment for BMI	6. Adjustment for other lifestyle variables	7. Outcome measurement	8. Follow-up at least 10 years?	9. Loss to follow-up <20%	10. Smoking as the main exposure	Total score
Keen et al, ¹ 1982	0	1	0	1	1	1	1	1	1	0	7
Feskens et al, ² 1989	1	1	0	1	0	1	0	1	0	1	6
Cassano et al, ³ 1992	0	1	0	1	1	0	1	1	1	0	6
Rimm et al, ⁴ 1995	0	1	0	1	1	1	1	0	1	1	7
Kawakami et al, ⁵ 1997	0	1	0	1	1	1	1	0	1	1	7
Njolstad et al, ⁶ 1998	1	1	0	1	0	1	1	1	1	1	8
Sugimori et al, ⁷ 1998	0	1	0	1	1	1	1	1	0	1	7
Uchimoto et al, ⁸ 1999	0	1	0	1	1	1	1	1	1	1	8
Manson et al, ⁹ 2000	0	1	0	1	1	1	0	1	1	1	7
Nakanishi et al, ¹⁰ 2000	0	1	0	1	1	1	1	0	1	1	7
Strandberg et al, ¹¹ 2000	0	1	0	1	1	0	1	1	0	1	6
Wannamethee et al, ¹² 2001	1	1	0	1	1	1	1	1	1	1	9
Will et al, ¹³ 2001	1	1	0	1	1	1	0	0	0	1	6
Montgomery et al, ¹⁴ 2002	0	1	0	1	1	0	0	1	0	1	5
Sawada et al, ¹⁵ 2003	0	1	0	1	1	1	1	1	1	0	7
Bonora et al, ¹⁶ 2004	0	1	0	1	0	0	1	0	1	1	5
Eliasson et al, ¹⁷ 2004	1	1	0	1	1	0	1	0	0	1	6
Ford et al, ¹⁸ 2004	1	1	0	1	1	1	0	1	1	0	7
Sairenchi et al, ¹⁹ 2004	1	1	0	1	1	1	1	0	0	1	7
Foy et al, ²⁰ 2005	0	1	0	1	1	0	1	0	1	1	6
Lyssenko et al, ²¹ 2005	0	1	0	1	1	0	1	0	1	1	6
Patja et al, ²² 2005	1	1	0	1	1	1	0	1	1	1	8
Tenenbaum et al, ²³ 2005	0	1	0	1	1	0	1	0	1	1	6
Houston et al, ²⁴ 2006	0	1	1	1	1	1	1	1	1	1	9
Meisinger et al, ²⁵ 2006	1	1	0	1	1	1	0	1	1	1	8
Vasiliu et al, ²⁶ 2006	0	1	0	1	1	1	0	1	0	0	5
Burke et al, ²⁷ 2007	0	1	0	1	1	0	0	1	1	1	6
Cugati et al, ²⁸ 2007	1	1	0	1	1	0	1	1	0	1	7
Dehghan et al, ²⁹ 2007	1	1	0	1	1	0	1	0	1	1	7
Holme et al, ³⁰ 2007	1	1	0	1	1	1	1	1	0	0	7
Hur et al, ³¹ 2007	0	1	0	1	1	1	1	0	0	1	6
Mozaffarian et al, ³² 2007	0	1	0	1	1	1	1	0	1	1	7
Onat et al, ³³ 2007	0	1	0	1	1	1	1	0	0	1	6
Wang et al, ³⁴ 2007	0	1	0	1	1	1	1	0	1	0	6
Akbaraly et al, ³⁵ 2008	1	1	0	1	1	1	1	0	1	0	7
Balkau et al, ³⁶ 2008	0	1	0	1	1	0	1	0	0	1	5
Hayashino et al, ³⁷ 2008	0	1	0	1	0	1	1	0	0	1	5
Kim et al, ³⁸ 2008	0	1	0	1	1	0	1	0	0	0	4
Kouvonen et al, ³⁹ 2008	0	1	0	1	0	0	0	1	1	0	4
Lyssenko et al, ⁴⁰ 2008	1	1	0	1	1	0	1	1	0	1	7
Magliano et al, ⁴¹ 2008	1	1	0	1	1	1	1	0	0	1	7
Nagaya et al, ⁴² 2008	1	1	0	1	0	0	1	0	1	1	6

Nichols et al, ⁴³ 2008	1	1	0	1	1	0	1	0	1	0	6
Park et al, ⁴⁴ 2008	0	1	0	1	1	1	1	0	0	1	6
Chien et al, ⁴⁵ 2009	1	1	0	1	1	0	1	1	1	1	8
Cho et al, ⁴⁶ 2009	1	1	0	1	1	1	1	0	0	1	7
Cullen et al, ⁴⁷ 2009	1	1	0	1	1	1	0	1	1	1	8
Hippisley-Cox et al, ⁴⁸ 2009	1	1	0	1	1	0	0	0	0	1	5
Laaksonen et al, ⁴⁹ 2009	1	1	0	1	0	0	0	1	1	1	6
Mozaffarian et al, ⁵⁰ 2009	0	1	0	1	1	1	1	0	1	1	7
Rathmann et al, ⁵¹ 2009	1	1	0	1	1	0	1	0	0	1	6
Jee et al, ⁵² 2010	1	1	0	1	1	1	0	1	0	1	7
Joseph et al, ⁵³ 2010	1	1	0	1	1	1	1	1	0	1	8
Shirom et al, ⁵⁴ 2010	0	1	0	1	1	1	0	1	1	0	6
Yeh et al, ⁵⁵ 2010	1	1	0	1	1	1	1	0	1	1	8
Fagerberg et al, ⁵⁶ 2011	0	1	0	1	0	0	1	0	0	0	3
Fukui et al, ⁵⁷ 2011	0	1	0	1	1	1	1	0	0	1	6
Ide et al, ⁵⁸ 2011	0	1	0	1	1	0	1	0	1	0	5
Reis et al, ⁵⁹ 2011	1	1	0	1	1	1	0	1	0	1	7
Steinbrecher et al, ⁶⁰ 2011	1	1	0	1	1	1	0	1	1	1	8
Wang et al, ⁶¹ 2011	0	1	0	1	0	0	0	0	1	1	4
Zhang et al, ⁶² 2011	0	1	0	1	1	1	1	1	1	1	8
de Leon et al, ⁶³ 2012	1	1	0	1	0	0	0	0	1	1	5
Doi et al, ⁶⁴ 2012	1	1	0	1	1	1	1	1	1	1	9
Guasch-Ferre et al, ⁶⁵ 2012	0	1	0	1	1	1	1	0	1	1	7
Heianza et al, ⁶⁶ 2012	0	1	0	1	1	0	1	0	1	1	6
Jeon et al, ⁶⁷ 2012	1	1	0	1	1	0	1	0	1	0	6
Morimoto et al, ⁶⁸ 2012	0	1	0	1	1	1	1	0	1	1	7
Morrison et al, ⁶⁹ 2012	1	1	0	1	0	0	1	1	1	1	7
Oba et al, ⁷⁰ 2012	1	1	0	1	1	1	1	0	0	0	6
Ostenson et al, ⁷¹ 2012	0	1	0	1	1	1	1	1	1	1	8
Stringhini et al, ⁷² 2012	0	1	0	1	0	0	1	1	1	0	5
Teratani et al, ⁷³ 2012	0	1	0	1	1	1	1	0	1	1	7
Icks et al, ⁷⁴ 2013	1	1	0	1	0	1	1	0	1	0	6
Kaneto et al, ⁷⁵ 2013	0	1	0	1	1	1	1	0	1	0	6
Luo et al, ⁷⁶ 2013	0	1	0	1	1	1	0	0	1	1	6
Mani et al, ⁷⁷ 2013	0	1	0	1	1	0	0	0	1	1	5
Novak et al, ⁷⁸ 2013	1	1	0	1	0	0	0	0	1	1	5
Rasouli et al, ⁷⁹ 2013	1	1	0	1	0	1	0	1	0	1	6
Shi et al, ⁸⁰ 2013	1	1	0	1	1	1	0	0	1	1	7
Sadeghi et al, ⁸¹ 2014	1	1	0	1	1	1	1	0	0	0	6
Spijkerman et al, ⁸² 2014	1	1	0	1	1	1	0	1	1	1	8
Hilawe et al, ⁸³ 2015	0	1	0	1	1	1	1	0	0	1	6
Lindberg et al, ⁸⁴ 2015	1	1	0	1	1	1	0	0	0	1	6
Hunt et al, ⁸⁵ 2006	1	1	0	1	1	1	0	0	0	0	6
Kowall et al, ⁸⁶ 2010	1	1	0	1	1	1	1	0	1	1	8
Ko et al, ⁸⁷ 2011	1	1	0	1	0	1	1	0	0	1	6
Lajous et al, ⁸⁸ 2013	1	1	0	1	1	1	0	1	1	1	8

Note: 1 = "Yes", 0 = "No", "Unable to determine" or "Not applicable".

Appendix Table 6. Smoking Cessation and Risk of Incident Type 2 Diabetes

	RR (95% CI)	n of comparisons	I^2 (%)	P for Heterogeneity
Overall results^a				
Never smoking	1.00 (reference)			
Continuous smoking	1.47 (1.34-1.62)	13	72.4	<0.0001
Quit <5 years ago	1.54 (1.36-1.74)	13	82.3	<0.0001
Quit 5-9 years ago	1.18 (1.07-1.29)	11	55.8	0.01
Quit \geq 10 years ago	1.11 (1.02-1.20)	11	76.1	<0.0001
Stratified by sex[†]				
Men				
Never smoking	1.00 (reference)			
Quit <5 years ago	1.60 (1.33-1.95)	7	74.6	0.001
Quit 5-9 years ago	1.12 (1.04-1.21)	6	0	0.68
Quit \geq 10 years ago	1.19 (1.00-1.42)	6	79.2	<0.0001
Women				
Never smoking	1.00 (reference)			
Quit <5 years ago	1.46 (1.18-1.81)	5	88.7	<0.0001
Quit 5-9 years ago	1.24 (1.02-1.51)	4	84.2	<0.0001
Quit \geq 10 years ago	1.04 (0.95-1.15)	4	68.6	0.02
Stratified by study location				
USA or UK				
Never smoking	1.00 (reference)			
Quit <5 years ago	1.43 (1.26-1.62)	9	82.9	<0.0001
Quit 5-9 years ago	1.17 (1.06-1.29)	6	62.8	0.01
Quit \geq 10 years ago	1.08 (1.01-1.16)	9	69.4	0.001
Korea or Japan				
Never smoking	1.00 (reference)			
Quit <5 years ago	2.04 (1.50-2.77)	4	54.8	0.08
Quit 5-9 years ago	1.31 (0.91-1.88)	4	53.9	0.09
Quit \geq 10 years ago	1.50 (0.60-3.78)	2	92.2	<0.0001

Abbreviations: RR, relative risk.

^aThree studies reported their results by men and women separately, thus there are 13 comparisons from 10 studies. The study Oba et al.⁷⁰ only reported results by <5 and \geq 5 years since quitting smoking, and the results in the \geq 5 years was put in the category of 5-9 years; the study by Spijkerman et al.⁸² only reported results by <10 and \geq 10 years since quitting smoking, and the results in the <10 years was put in the category of <5 years; these two studies also reported results by sex, thus there are 10 reports for the category of "quitting 5-9 years ago" and "quitting \geq 10 years ago".

[†]One study Yeh et al.⁵⁵ did not report results separately by sex, thus the stratified analysis by sex included 9 comparisons from 7 studies.

Appendix Table 7. Calculation of Population Attributable Fraction for Type 2 Diabetes Associated with Active Smoking.^a

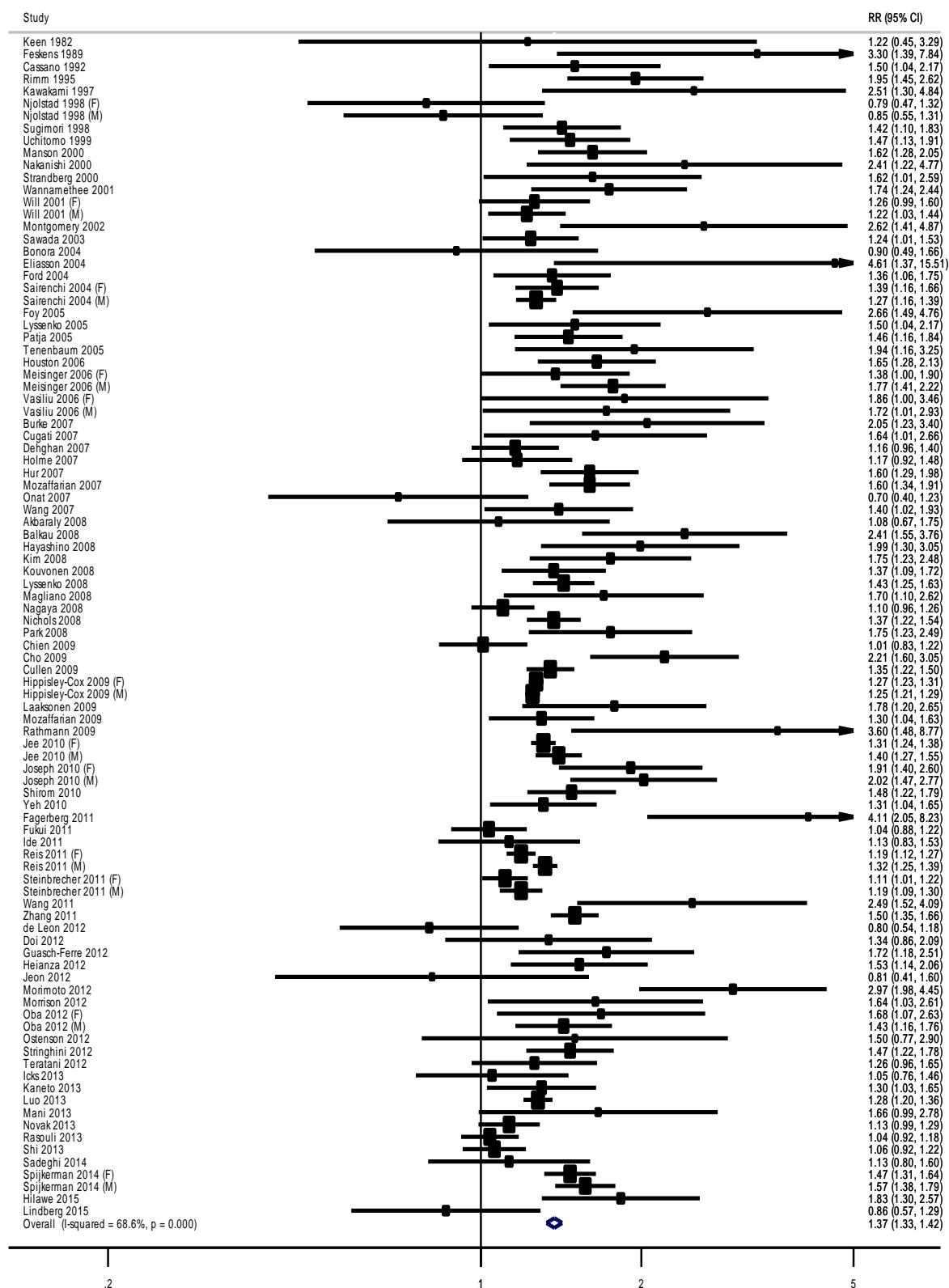
	Global	United States	United Kingdom	China
Smoking prevalence (%) ^b	35.8 (M) 6.6 (F)	20.3 (M) 15.9 (F)	21.1 (M) 19.5 (F)	48.7 (M) 1.9 (F)
RR (95% CI) ^c	1.37 (1.33-1.42)	1.34 (1.27-1.42)	1.39 (1.31-1.47)	1.41 (1.31-1.50)
PAF (%)	11.7 (10.6-13.1) (M) 2.4 (2.1-2.7) (F)	6.5 (5.2-7.9) (M) 5.1 (4.1-6.3) (F)	7.6 (6.1-9.0) (M) 7.1 (5.7-8.4) (F)	16.6 (13.1-19.6) (M) 0.8 (0.6-1.0) (F)

Abbreviations: F, female; RR, relative risk; M, male; PAF, population attributable fraction.

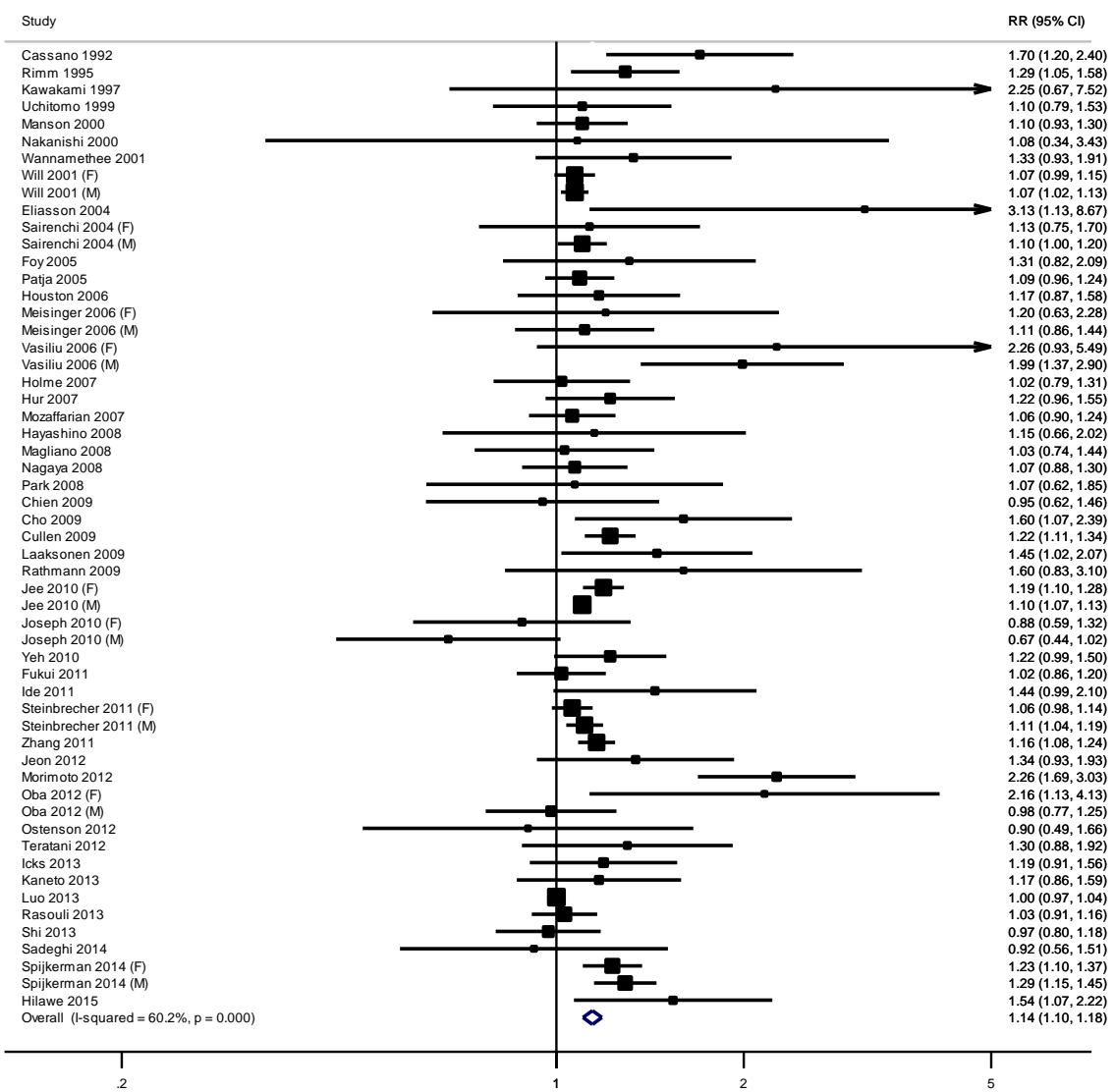
^aPopulation attributable fraction was calculated as $PAF=100\% \times P_e(RR-1)/(P_e[RR-1]+1)$, where P_e was the prevalence of smoking in the population and RR was derived from this meta-analysis.

^bThe smoking prevalence data were from the recent WHO report (World Health Organization. WHO report on the global tobacco epidemic 2015. http://www.who.int/tobacco/global_report/2015/en/. Accessed August 26, 2015) about global prevalence of current tobacco use.

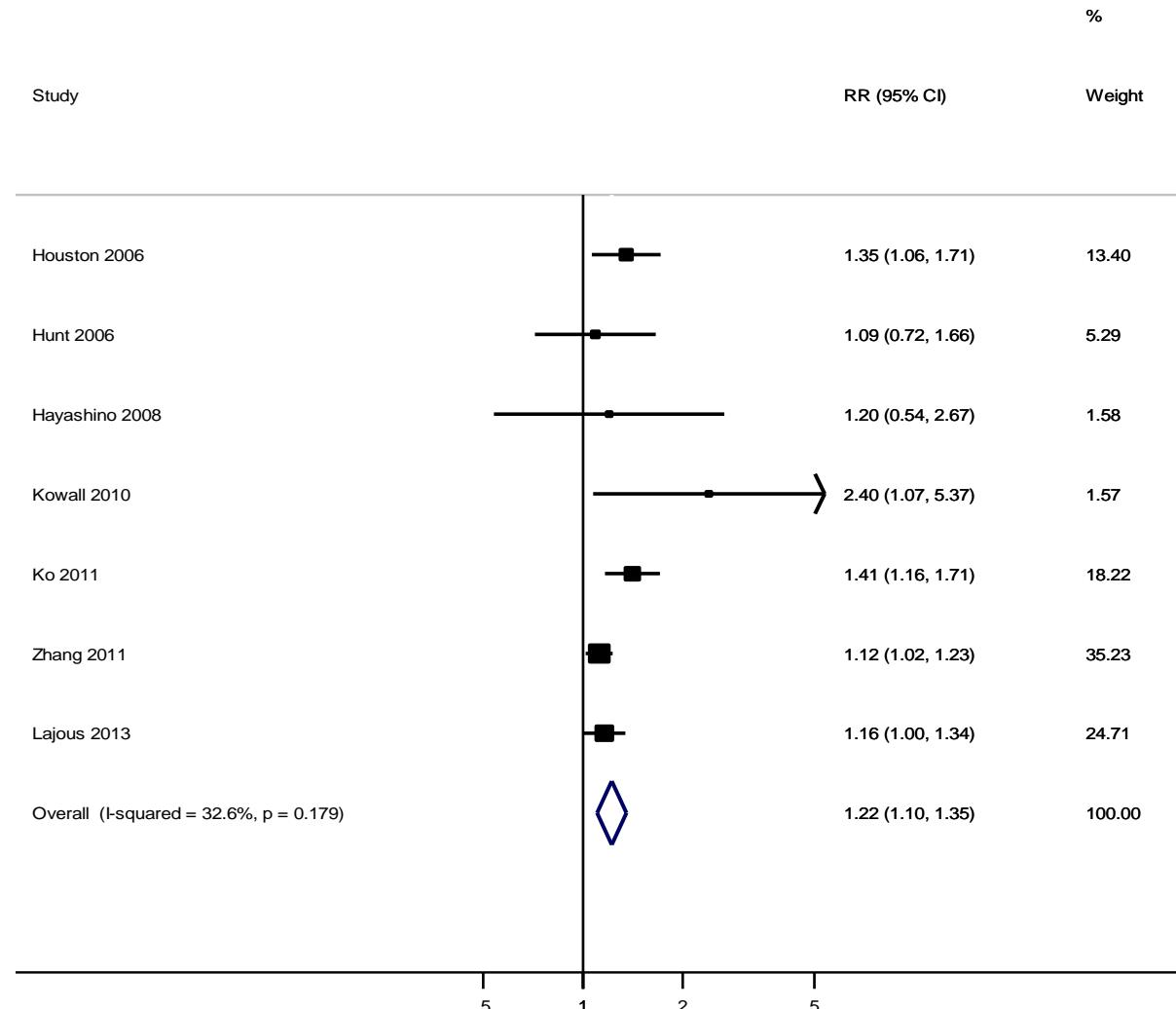
^cThe RR (95% CI) was derived from the meta-analysis of results in US populations, European populations and Asian populations for US, UK and China estimates, respectively.

Appendix Figure 1. Adjusted Relative Risk of Current Smoking and Risk of Incident Type 2 Diabetes**Figure legend**

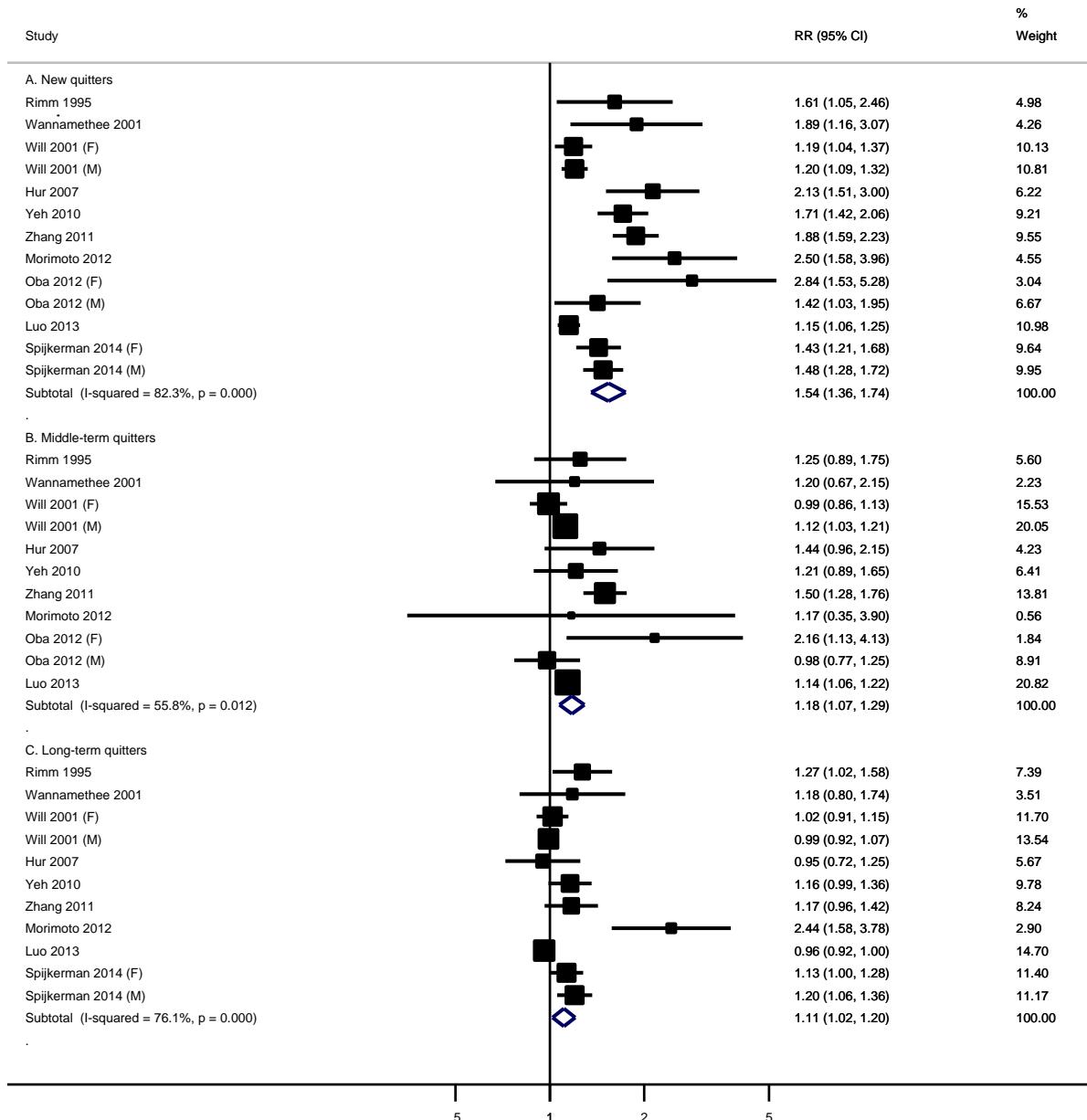
The summary estimates were obtained using a random-effects model. The data markers indicate the adjusted relative risks (RRs) comparing smoking to no smoking. The size of the data markers indicates the weight of the study, which is the inverse variance of the effect estimate. The diamond data markers indicate the pooled RRs.

Appendix Figure 2. Adjusted Relative Risk of Former Smoking with Risk of Incident Type 2 Diabetes**Figure legend**

The summary estimates were obtained using a random-effects model. The data markers indicate the adjusted relative risks (RRs) comparing smoking to no smoking. The size of the data markers indicates the weight of the study, which is the inverse variance of the effect estimate. The diamond data markers indicate the pooled RRs.

Appendix Figure 3. Adjusted Relative Risk of Passive Smoking with Risk of Incident Type 2 Diabetes**Figure legend**

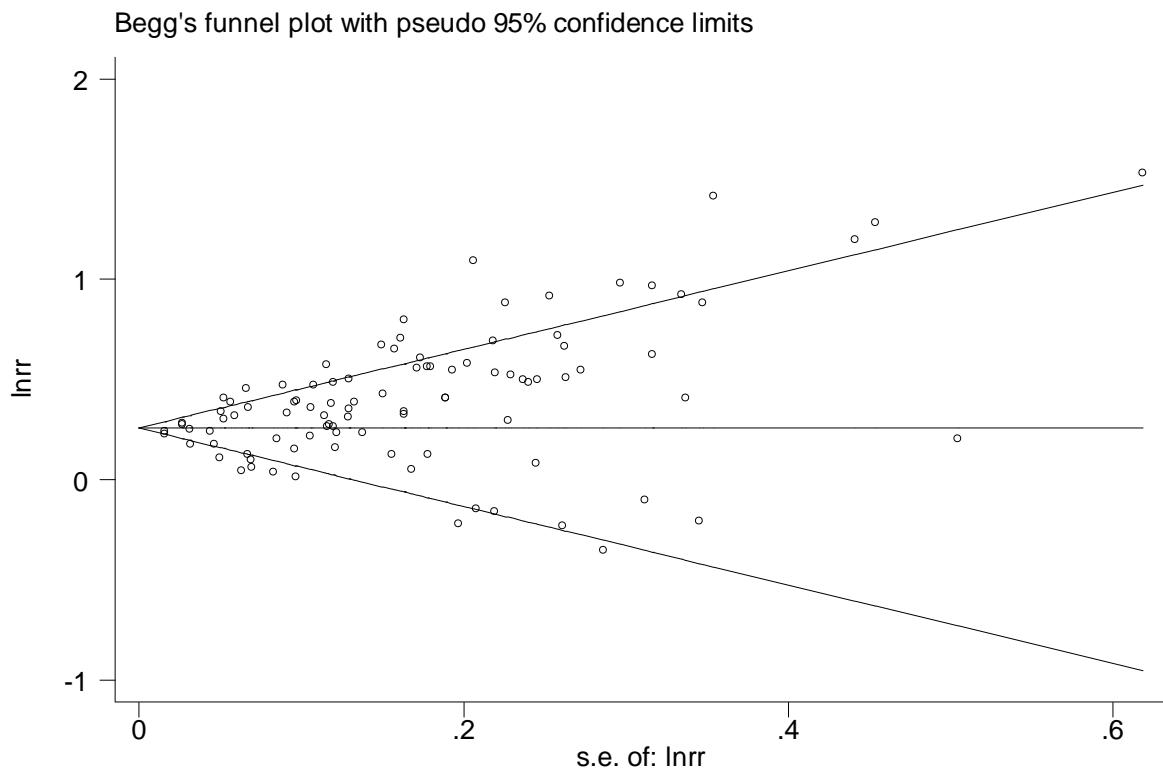
The summary estimates were obtained using a random-effects model. The data markers indicate the adjusted relative risks (RRs) comparing smoking to no smoking. The size of the data markers indicates the weight of the study, which is the inverse variance of the effect estimate. The diamond data markers indicate the pooled RRs.

Appendix Figure 4. Adjusted Relative Risk of Smoking Cessation with Risk of Incident Type 2 Diabetes**Figure legend**

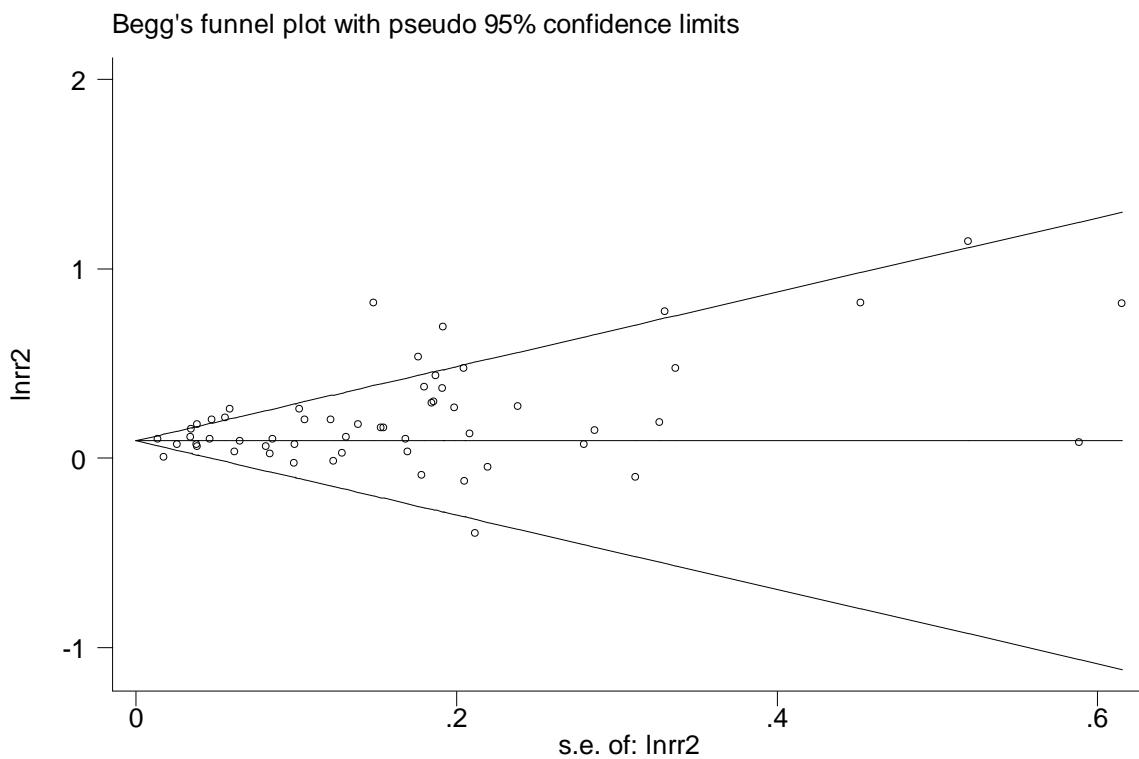
The summary estimates were obtained using a random-effects model for (A) new quitters (<5 years); (B) middle-term quitters (5-9 years); (C) long-term quitters (≥ 10 years) with risk of type 2 diabetes. The data markers indicate the adjusted relative risks (RRs) comparing smoking to no smoking. The size of the data markers indicates the weight of the study, which is the inverse variance of the effect estimate. The diamond data markers indicate the pooled RRs.

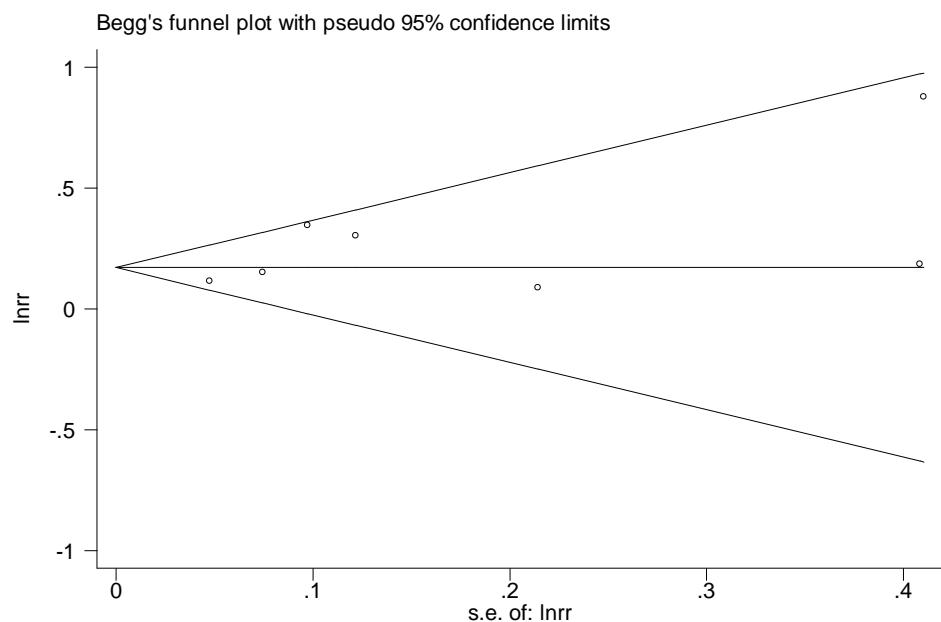
Appendix Figure 5. Funnel Plots for (A) Current Smoking, (B) Former Smoking and (C) Passive Smoking for Publication Bias for Diabetes Risk

(A) Current Smoking



(B) Former Smoking



(C) Passive Smoking**Figure legends:**

The pseudo 95% confidence interval is computed as part of the analysis that produces the funnel plot, and corresponding to the expected 95% confidence interval for a given standard error (SE). RR indicates relative risk.

References

1. Keen H, Jarrett RJ, McCartney P. The ten-year follow-up of the Bedford survey (1962–1972): glucose tolerance and diabetes. *Diabetologia* 1982; **22**: 73–8.
2. Feskens EJ, Kromhout D. Cardiovascular risk factors and the 25-year incidence of diabetes mellitus in middle-aged men. The Zutphen Study. *Am J Epidemiol* 1989; **130**: 1101–8.
3. Cassano PA, Rosner B, Vokonas PS, Weiss ST. Obesity and body fat distribution in relation to the incidence of non-insulin-dependent diabetes mellitus. A prospective cohort study of men in the normative aging study. *Am J Epidemiol* 1992; **136**: 1474–86.
4. Rimm EB, Chan J, Stampfer MJ, Colditz GA, Willett WC. Prospective study of cigarette smoking, alcohol use, and the risk of diabetes in men. *BMJ* 1995; **310**: 555–9.
5. Kawakami N, Takatsuka N, Shimizu H, Ishibashi H. Effects of smoking on the incidence of non-insulin-dependent diabetes mellitus. Replication and extension in a Japanese cohort of male employees. *Am J Epidemiol* 1997; **145**: 103–9.
6. Njolstad I, Arnesen E, Lund-Larsen PG. Sex differences in risk factors for clinical diabetes mellitus in a general population: a 12-year follow-up of the Finnmark Study. *Am J Epidemiol* 1998; **147**: 49–58.
7. Sugimori H, Miyakawa M, Yoshida K, et al. Health risk assessment for diabetes mellitus based on longitudinal analysis of MHTS database. *J Med Syst* 1998; **22**: 27–32.
8. Uchimoto S, Tsumura K, Hayashi T, et al. Impact of cigarette smoking on the incidence of Type 2 diabetes mellitus in middle-aged Japanese men: the Osaka Health Survey. *Diabet Med* 1999; **16**: 951–5.
9. Manson JE, Ajani UA, Liu S, Nathan DM, Hennekens CH. A prospective study of cigarette smoking and the incidence of diabetes mellitus among US male physicians. *Am J Med* 2000; **109**: 538–42.
10. Nakanishi N, Nakamura K, Matsuo Y, Suzuki K, Tatara K. Cigarette smoking and risk for impaired fasting glucose and type 2 diabetes in middle-aged Japanese men. *Ann Intern Med* 2000; **133**: 183–91.
11. Strandberg TE, Salomaa V. Factors related to the development of diabetes during a 20-year follow-up. A prospective study in a homogeneous group of middle-aged men. *Nutr Metab Cardiovasc Dis* 2000; **10**: 239–46.
12. Wannamethee SG, Shaper AG, Perry IJ. Smoking as a modifiable risk factor for type 2 diabetes in middle-aged men. *Diabetes Care* 2001; **24**: 1590–5.
13. Will JC, Galuska DA, Ford ES, Mokdad A, Calle EE. Cigarette smoking and diabetes mellitus: evidence of a positive association from a large prospective cohort study. *Int J Epidemiol* 2001; **30**: 540–6.
14. Montgomery SM, Ekbom A. Smoking during pregnancy and diabetes mellitus in a British longitudinal birth cohort. *BMJ* 2002; **324**: 26–7.
15. Sawada SS, Lee IM, Muto T, Matuszaki K, Blair SN. Cardiorespiratory fitness and the incidence of type 2 diabetes: prospective study of Japanese men. *Diabetes Care* 2003; **26**: 2918–22.
16. Bonora E, Kiechl S, Willeit J, et al. Population-based incidence rates and risk factors for type 2 diabetes in white individuals: the Bruneck study. *Diabetes* 2004; **53**: 1782–9.
17. Eliasson M, Asplund K, Nasic S, Rodu B. Influence of smoking and snus on the prevalence and incidence of type 2 diabetes amongst men: the northern Sweden MONICA study. *J Intern Med* 2004; **256**: 101–10.
18. Ford ES, Mannino DM. Prospective association between lung function and the incidence of diabetes: findings from the National Health and Nutrition Examination Survey Epidemiologic Follow-up Study. *Diabetes Care* 2004; **27**: 2966–70.
19. Sairenchi T, Iso H, Nishimura A, et al. Cigarette smoking and risk of type 2 diabetes mellitus among middle-aged and elderly Japanese men and women. *Am J Epidemiol* 2004; **160**: 158–62.
20. Foy CG, Bell RA, Farmer DF, Jr., Wagenknecht LE. Smoking and incidence of diabetes among U.S. adults: findings from the Insulin Resistance Atherosclerosis Study. *Diabetes Care* 2005; **28**: 2501–7.
21. Lyssenko V, Almgren P, Anevski D, et al. Predictors of and longitudinal changes in insulin sensitivity and secretion preceding onset of type 2 diabetes. *Diabetes* 2005; **54**: 166–74.
22. Patja K, Jousilahti P, Hu G, Valle T, Qiao Q, Tuomilehto J. Effects of smoking, obesity and physical activity on the risk of type 2 diabetes in middle-aged Finnish men and women. *J Intern Med* 2005; **258**: 356–62.
23. Tenenbaum A, Fisman EZ, Adler Y, Motro M, Boyko V, Behar S. Smoking and development of type 2 diabetes in patients with decreased functional capacity. *Int J Cardiol* 2005; **104**: 275–81.
24. Houston TK, Person SD, Pletcher MJ, Liu K, Iribarren C, Kiefe CI. Active and passive smoking and development of glucose intolerance among young adults in a prospective cohort: CARDIA study. *BMJ* 2006; **332**: 1064–9.
25. Meisinger C, Doring A, Thorand B, Lowel H. Association of cigarette smoking and tar and nicotine intake with development of type 2 diabetes mellitus in men and women from the general population: the MONICA/KORA Augsburg Cohort Study. *Diabetologia* 2006; **49**: 1770–6.

26. Vasiliu O, Cameron L, Gardiner J, Deguire P, Karmaus W. Polybrominated biphenyls, polychlorinated biphenyls, body weight, and incidence of adult-onset diabetes mellitus. *Epidemiology* 2006; **17**: 352–9.
27. Burke V, Zhao Y, Lee AH, et al. Predictors of type 2 diabetes and diabetes-related hospitalisation in an Australian Aboriginal cohort. *Diabetes Res Clin Pract* 2007; **78**: 360–8.
28. Cugati S, Wang JJ, Rochtchina E, Mitchell P. Ten-year incidence of diabetes in older Australians: the Blue Mountains Eye Study. *Med J Aust* 2007; **186**: 131–5.
29. Dehghan A, van Hoek M, Sijbrands EJ, Stijnen T, Hofman A, Witteman JC. Risk of type 2 diabetes attributable to C-reactive protein and other risk factors. *Diabetes Care* 2007; **30**: 2695–9.
30. Holme I, Tonstad S, Sogaard AJ, Larsen PG, Haheim LL. Leisure time physical activity in middle age predicts the metabolic syndrome in old age: results of a 28-year follow-up of men in the Oslo study. *BMC Public Health* 2007; **7**: 154.
31. Hur NW, Kim HC, Nam CM, Jee SH, Lee HC, Suh I. Smoking cessation and risk of type 2 diabetes mellitus: Korea Medical Insurance Corporation Study. *Eur J Cardiovasc Prev Rehabil* 2007; **14**: 244–9.
32. Mozaffarian D, Marfisi R, Levantesi G, et al. Incidence of new-onset diabetes and impaired fasting glucose in patients with recent myocardial infarction and the effect of clinical and lifestyle risk factors. *Lancet* 2007; **370**: 667–75.
33. Onat A, Ozhan H, Esen AM, et al. Prospective epidemiologic evidence of a "protective" effect of smoking on metabolic syndrome and diabetes among Turkish women--without associated overall health benefit. *Atherosclerosis* 2007; **193**: 380–8.
34. Wang CS, Wang ST, Yao WJ, Chang TT, Chou P. Hepatitis C virus infection and the development of type 2 diabetes in a community-based longitudinal study. *Am J Epidemiol* 2007; **166**: 196–203.
35. Akbaraly TN, Fontbonne A, Favier A, Berr C. Plasma carotenoids and onset of dysglycemia in an elderly population: results of the Epidemiology of Vascular Ageing Study. *Diabetes Care* 2008; **31**: 1355–9.
36. Balkau B, Lange C, Fezeu L, et al. Predicting diabetes: clinical, biological, and genetic approaches: data from the Epidemiological Study on the Insulin Resistance Syndrome (DESIR). *Diabetes Care* 2008; **31**: 2056–61.
37. Hayashino Y, Fukuhara S, Okamura T, et al. A prospective study of passive smoking and risk of diabetes in a cohort of workers: the High-Risk and Population Strategy for Occupational Health Promotion (HIPOP-OHP) study. *Diabetes Care* 2008; **31**: 732–4.
38. Kim CH, Park JY, Lee KU, Kim JH, Kim HK. Fatty liver is an independent risk factor for the development of Type 2 diabetes in Korean adults. *Diabet Med* 2008; **25**: 476–81.
39. Kouvolonen AM, Vaananen A, Woods SA, Heponiemi T, Koskinen A, Toppinen-Tanner S. Sense of coherence and diabetes: a prospective occupational cohort study. *BMC Public Health* 2008; **8**: 46.
40. Lyssenko V, Jonsson A, Almgren P, et al. Clinical risk factors, DNA variants, and the development of type 2 diabetes. *N Engl J Med* 2008; **359**: 2220–32.
41. Magliano DJ, Barr EL, Zimmet PZ, et al. Glucose indices, health behaviors, and incidence of diabetes in Australia: the Australian Diabetes, Obesity and Lifestyle Study. *Diabetes Care* 2008; **31**: 267–72.
42. Nagaya T, Yoshida H, Takahashi H, Kawai M. Heavy smoking raises risk for type 2 diabetes mellitus in obese men; but, light smoking reduces the risk in lean men: a follow-up study in Japan. *Ann Epidemiol* 2008; **18**: 113–8.
43. Nichols GA, Hillier TA, Brown JB. Normal fasting plasma glucose and risk of type 2 diabetes diagnosis. *Am J Med* 2008; **121**: 519–24.
44. Park CH, Ga H, Leem JH, Kwak SM, Kim HC, Choi JH. [The effect of smoking status upon occurrence of impaired fasting glucose or type 2 diabetes in Korean men]. *J Prev Med Public Health* 2008; **41**: 249–54.
45. Chien K, Cai T, Hsu H, et al. A prediction model for type 2 diabetes risk among Chinese people. *Diabetologia* 2009; **52**: 443–50.
46. Cho NH, Chan JC, Jang HC, Lim S, Kim HL, Choi SH. Cigarette smoking is an independent risk factor for type 2 diabetes: a four-year community-based prospective study. *Clin Endocrinol (Oxf)* 2009; **71**: 679–85.
47. Cullen MW, Ebbert JO, Vierkant RA, Wang AH, Cerhan JR. No interaction of body mass index and smoking on diabetes mellitus risk in elderly women. *Prev Med* 2009; **48**: 74–8.
48. Hippisley-Cox J, Coupland C, Robson J, Sheikh A, Brindle P. Predicting risk of type 2 diabetes in England and Wales: prospective derivation and validation of QDScore. *BMJ* 2009; **338**: b880.
49. Laaksonen MA, Knekett P, Rissanen H, et al. The relative importance of modifiable potential risk factors of type 2 diabetes: a meta-analysis of two cohorts. *Eur J Epidemiol* 2010; **25**: 115–24.
50. Mozaffarian D, Kamineni A, Carnethon M, Djousse L, Mukamal KJ, Siscovick D. Lifestyle risk factors and new-onset diabetes mellitus in older adults: the cardiovascular health study. *Arch Intern Med* 2009; **169**: 798–807.

51. Rathmann W, Strassburger K, Heier M, et al. Incidence of Type 2 diabetes in the elderly German population and the effect of clinical and lifestyle risk factors: KORA S4/F4 cohort study. *Diabet Med* 2009; **26**: 1212–9.
52. Jee SH, Foong AW, Hur NW, Samet JM. Smoking and risk for diabetes incidence and mortality in Korean men and women. *Diabetes Care* 2010; **33**: 2567–72.
53. Joseph J, Svartberg J, Njolstad I, Schirmer H. Incidence of and risk factors for type-2 diabetes in a general population: the Tromso Study. *Scand J Public Health* 2010; **38**: 768–75.
54. Shirom A, Toker S, Jacobson O, Balicer RD. Feeling vigorous and the risks of all-cause mortality, ischemic heart disease, and diabetes: a 20-year follow-up of healthy employees. *Psychosom Med* 2010; **72**: 727–33.
55. Yeh HC, Duncan BB, Schmidt MI, Wang NY, Brancati FL. Smoking, smoking cessation, and risk for type 2 diabetes mellitus: a cohort study. *Ann Intern Med* 2010; **152**: 10–7.
56. Fagerberg B, Kellis D, Bergstrom G, Behre CJ. Adiponectin in relation to insulin sensitivity and insulin secretion in the development of type 2 diabetes: a prospective study in 64–year-old women. *J Intern Med* 2011; **269**: 636–43.
57. Fukui M, Tanaka M, Toda H, et al. Risk factors for development of diabetes mellitus, hypertension and dyslipidemia. *Diabetes Res Clin Pract* 2011; **94**: e15–8.
58. Ide R, Hoshuyama T, Wilson D, Takahashi K, Higashi T. Periodontal disease and incident diabetes: a seven-year study. *J Dent Res* 2011; **90**: 41–6.
59. Reis JP, Loria CM, Sorlie PD, Park Y, Hollenbeck A, Schatzkin A. Lifestyle factors and risk for new-onset diabetes: a population-based cohort study. *Ann Intern Med* 2011; **155**: 292–9.
60. Steinbrecher A, Morimoto Y, Heak S, et al. The preventable proportion of type 2 diabetes by ethnicity: the multiethnic cohort. *Ann Epidemiol* 2011; **21**: 526–35.
61. Wang W, Guo Y, Liao Z, et al. Occurrence of and risk factors for diabetes mellitus in Chinese patients with chronic pancreatitis. *Pancreas* 2011; **40**: 206–12.
62. Zhang L, Curhan GC, Hu FB, Rimm EB, Forman JP. Association between passive and active smoking and incident type 2 diabetes in women. *Diabetes Care* 2011; **34**: 892–7.
63. de Leon AC, Coello SD, Gonzalez DA, et al. Impaired fasting glucose, ancestry and waist-to-height ratio: main predictors of incident diagnosed diabetes in the Canary Islands. *Diabet Med* 2012; **29**: 399–403.
64. Doi Y, Ninomiya T, Hata J, et al. Two risk score models for predicting incident Type 2 diabetes in Japan. *Diabet Med* 2012; **29**: 107–14.
65. Guasch-Ferre M, Bullo M, Costa B, et al. A risk score to predict type 2 diabetes mellitus in an elderly Spanish Mediterranean population at high cardiovascular risk. *PLoS One* 2012; **7**: e33437.
66. Heianza Y, Arase Y, Hsieh SD, et al. Development of a new scoring system for predicting the 5 year incidence of type 2 diabetes in Japan: the Toranomon Hospital Health Management Center Study 6 (TOPICS 6). *Diabetologia* 2012; **55**: 3213–23.
67. Jeon CY, Haan MN, Cheng C, et al. Helicobacter pylori infection is associated with an increased rate of diabetes. *Diabetes Care* 2012; **35**: 520–5.
68. Morimoto A, Ohno Y, Tatsumi Y, et al. Impact of smoking cessation on incidence of diabetes mellitus among overweight or normal-weight Japanese men. *Diabetes Res Clin Pract* 2012; **96**: 407–13.
69. Morrison JA, Glueck CJ, Wang P. Childhood risk factors predict cardiovascular disease, impaired fasting glucose plus type 2 diabetes mellitus, and high blood pressure 26 years later at a mean age of 38 years: the Princeton-lipid research clinics follow-up study. *Metabolism* 2012; **61**: 531–41.
70. Oba S, Noda M, Waki K, et al. Smoking cessation increases short-term risk of type 2 diabetes irrespective of weight gain: the Japan Public Health Center-Based Prospective Study. *PLoS One* 2012; **7**: e17061.
71. Ostenson CG, Hilding A, Grill V, Efendic S. High consumption of smokeless tobacco ("snus") predicts increased risk of type 2 diabetes in a 10-year prospective study of middle-aged Swedish men. *Scand J Public Health* 2012; **40**: 730–7.
72. Stringhini S, Tabak AG, Akbaraly TN, et al. Contribution of modifiable risk factors to social inequalities in type 2 diabetes: prospective Whitehall II cohort study. *BMJ* 2012; **345**: e5452.
73. Teratani T, Morimoto H, Sakata K, et al. Dose-response relationship between tobacco or alcohol consumption and the development of diabetes mellitus in Japanese male workers. *Drug Alcohol Depend* 2012; **125**: 276–82.
74. Icks A, Albers B, Haastert B, et al. Diabetes incidence does not differ between subjects with and without high depressive symptoms--5-year follow-up results of the Heinz Nixdorf Recall Study. *Diabet Med* 2013; **30**: 65–69.
75. Kaneto C, Toyokawa S, Miyoshi Y, Suyama Y, Kobayashi Y. Long-term weight change in adulthood and incident diabetes mellitus: MY Health Up Study. *Diabetes Res Clin Pract* 2013; **102**: 138–46.

76. Luo J, Rossouw J, Tong E, et al. Smoking and diabetes: does the increased risk ever go away? *Am J Epidemiol* 2013; **178**: 937–45.
77. Mani H, Levy MJ, Davies MJ, et al. Diabetes and cardiovascular events in women with polycystic ovary syndrome: a 20-year retrospective cohort study. *Clin Endocrinol (Oxf)* 2013; **78**: 926–34.
78. Novak M, Bjorck L, Giang KW, Heden-Stahl C, Wilhelmsen L, Rosengren A. Perceived stress and incidence of Type 2 diabetes: a 35-year follow-up study of middle-aged Swedish men. *Diabet Med* 2013; **30**: e8–16.
79. Rasouli B, Grill V, Midthjell K, Ahlbom A, Andersson T, Carlsson S. Smoking is associated with reduced risk of autoimmune diabetes in adults contrasting with increased risk in overweight men with type 2 diabetes: a 22-year follow-up of the HUNT study. *Diabetes Care* 2013; **36**: 604–10.
80. Shi L, Shu XO, Li H, et al. Physical activity, smoking, and alcohol consumption in association with incidence of type 2 diabetes among middle-aged and elderly Chinese men. *PLoS One* 2013; **8**: e77919.
81. Sadeghi M, Talaei M, Parvaresh Rizi E, Dianatkhah M, Oveisgharan S, Sarrafzadegan N. Determinants of incident prediabetes and type 2 diabetes in a 7-year cohort in a developing country: The Isfahan Cohort Study. *J Diabetes* 2014 Oct 28. doi: 10.1111/1753-0407.12236. [Epub ahead of print].
82. Spijkerman AM, van der AD, Nilsson PM, et al. Smoking and long-term risk of type 2 diabetes: the EPIC-InterAct study in European populations. *Diabetes Care* 2014; **37**: 3164–71.
83. Hilawe EH, Yatsuya H, Li Y, et al. Smoking and diabetes: is the association mediated by adiponectin, leptin, or C-reactive protein? *J Epidemiol* 2015; **25**: 99–109.
84. Lindberg S, Jensen JS, Bjerre M, et al. Adiponectin, type 2 diabetes and cardiovascular risk. *Eur J Prev Cardiol* 2015; **22**: 276–83.
85. Hunt KJ, Hansis-Diarte A, Shipman K, Korte JE, Fowler SP, Stern MP. Impact of parental smoking on diabetes, hypertension and the metabolic syndrome in adult men and women in the San Antonio Heart Study. *Diabetologia* 2006; **49**: 2291–8.
86. Kowall B, Rathmann W, Strassburger K, et al. Association of passive and active smoking with incident type 2 diabetes mellitus in the elderly population: the KORA S4/F4 cohort study. *Eur J Epidemiol* 2010; **25**: 393–402.
87. Ko KP, Min H, Ahn Y, et al. A prospective study investigating the association between environmental tobacco smoke exposure and the incidence of type 2 diabetes in never smokers. *Ann Epidemiol* 2011; **21**: 42–7.
88. Lajous M, Tondeur L, Fagherazzi G, de Lauzon-Guillain B, Boutron-Ruauault MC, Clavel-Chapelon F. Childhood and adult secondhand smoke and type 2 diabetes in women. *Diabetes Care* 2013; **36**: 2720–5.